

Amendments to the Claims:

Please amend the claims, such that the pending claims read in accordance with the following listing of claims:

1. (Currently amended) A method of pre-equalizing a transmission characteristic of a signal processing circuitry, said method comprising ~~the steps of~~:
 - a) obtaining a difference between an output signal of said signal processing circuitry and an input signal of a pre-equalizing function;
 - b) approximating a gradient of said difference based on said obtained difference and an approximation of said transmission characteristic; and
 - c) updating control values of said pre-equalizing function ~~(15)~~ based on said approximated gradient.
2. (Original) A method according to claim 1, wherein said approximating step comprises the step of calculating an approximation of a least mean square gradient vector of said difference.
3. (Original) A method according to claim 2, wherein said gradient vector is calculated from a partial differential equation of a system cost function.
4. (Previously amended) A method according to claim 1, wherein said difference is obtained by comparing signal envelopes of said output and input signals.
5. (Original) A method according to claim 4, wherein said input signal is a digital signal and said output signal is an analog signal.

6. (Previously amended) A method according to claim 1, wherein said control values are coefficients of an adaptive digital filter.

7. (Previously amended) A method according to claim 1, wherein said transmission characteristic is approximated as a delay function.

8. (Original) A method according to claim 7, wherein the delay of said delay function corresponds to the position of the maximum analog filter peak of said transmission characteristic.

9. (Original) A method according to claim 8, wherein said gradient vector is calculated using the following equation:

$$\nabla \{E\} = -2e[k] \cdot \underline{d}[k - \tau],$$

wherein

$\nabla \{E\}$ denotes said gradient vector,

$e[k]$ denotes said obtained difference, and

$\underline{d}[k - \tau]$ denotes a vector representation of said input signal assessed by said delay approximation of said transmission characteristic.

10. (Original) A method according to claim 9, wherein filter coefficients are updated in said updating step based on the following equation:

$$\underline{w}[k + 1] = \underline{w}[k] + \mu e[k] \cdot \underline{d}[k - \tau],$$

wherein

$\underline{w}[k + 1]$ denotes a vector representation of updated filter coefficients,

$\underline{w}[k]$ denotes a vector representation of current filter coefficients, and μ denotes a predetermined proportionality factor.

11. (Currently amended) An apparatus for pre-equalizing a transmission characteristic of a signal processing circuitry, said apparatus comprising:

- a) a comparison circuit ~~comparing means~~ for obtaining a difference between an output signal of said signal processing circuitry and an input signal of a pre-equalizer ~~pre-equalizing means~~;
- b) an approximation circuit ~~means~~ for approximating a gradient of said difference based on said obtained difference and an approximation of said transmission characteristic; and
- c) an updating circuit ~~means~~ for obtaining control values supplied to said pre-equalizer ~~pre-equalizing means~~, based on said approximated gradient.

12. (Currently amended) An apparatus according to claim 11, wherein said ~~comparing means~~ are comparison circuit ~~is~~ arranged to compare said input and output signals based on their envelopes.

13. (Currently amended) An apparatus according to claim 11, wherein said approximation circuit ~~means~~ is arranged to approximate said transmission characteristic as a delay function and to approximate said gradient by using a least mean square approximation function.

14. (Previously amended) An apparatus according to claim 11, wherein said signal processing circuitry is a direct conversion or heterodyne transmitter architecture.

15. (Currently amended) An apparatus according to claim 11, wherein said apparatus comprises a digital pre-equalizer means.

16. (New) An apparatus for pre-equalizing a transmission characteristic of a signal processing circuitry, said apparatus comprising:

- a) comparing means for obtaining a difference between an output signal of said signal processing circuitry and an input signal of a pre-equalizing means;
- b) approximating means for approximating a gradient of said difference based on said obtained difference and an approximation of said transmission characteristic; and
- c) updating means for obtaining control values supplied to said pre-equalizing means, based on said approximated gradient.